Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application. Please cancel Claims 17, 35, and 45 without prejudice or disclaimer. Please add Claims 46-48 and amend Claims 1, 10-15, 20, 28-33, and 38-43 as indicated in the following Listing of Claims.

Listing of Claims

1. (Currently Amended) A method of polymerizing olefins, comprising:

contacting ethylene and at least one olefin comonomer with a catalyst composition under polymerization conditions to form a copolymer;

wherein the catalyst composition comprises the contact product of at least one tightly-bridged metallocene compound, at least one organoaluminum compound, and at least one chemically-treated solid oxide;

wherein the at least one chemically-treated solid oxide ~~comprises a material selected from fluorided silica-alumina,~~ is fluorided alumina, fluorided silica-titania, fluorided silica-zirconia, chlorided alumina, chlorided silica-alumina, chlorided silica-zirconia, chlorided zinc-aluminum oxide, sulfated alumina, sulfated silica-alumina, sulfated silica-zirconia, bromided alumina, bromided silica-alumina, bromided silica-zirconia, or any combination thereof;

wherein the at least one chemically-treated solid oxide is substantially free of titanium;

wherein the copolymer has a polydispersity index (Mw/Mn) less than or equal to about 20; and

wherein the copolymer has a film clarity of a 1 mil film less than or equal to about 30%.

2. (Original) The method of Claim 1, wherein the polydispersity index is less than or equal to about 12, and the film clarity is less than or equal to about 20%.

3. (Original) The method of Claim 1, wherein the polydispersity index is less than or equal to about 10, and the film clarity is less than or equal to about 10%.

4. (Original) The method of Claim 1, wherein the copolymer is further characterized by a density less than about 0.935 g/cm^3.

5. (Original) The method of Claim 1, wherein the copolymer is further characterized by a melt index (MI) from about 0.01 to about 10 dg/min.

6. (Original) The method of Claim 1, wherein the copolymer is further characterized by a high load melt index (HLMI) from about 8 to about 180 dg/min.

7. (Original) The method of Claim 1, wherein the copolymer is further characterized by a film haze of a 1 mil film at least about 60%.

8. (Original) The method of Claim 1, wherein the copolymer is further characterized by a melt strength of a 1 mil film greater than or equal to about 5.0 in.

9. (Original) The method of Claim 1, wherein the copolymer is further characterized by a 1% MD Secant modulus of less than about 50,000 psi.

10. (Currently amended) The method of Claim 1, wherein the at least one tightly-bridged metallocene compound is selected from a compound having the following formula:

$$(X^1)(X^2)(X^3)(X^4)M^1;$$

wherein M^1 is ~~selected from~~ titanium, zirconium, or hafnium;

wherein (X^1) and (X^2) are independently selected from a cyclopentadienyl, an indenyl, or a fluorenyl, any one of which can be substituted or unsubstituted;

wherein (X^1) and (X^2) are connected by a substituted or unsubstituted bridging group comprising:

a) one atom selected from carbon, silicon, germanium, or tin, bonded to both (X^1) and (X^2); or

b) two contiguous carbon atoms in a chain, one end of which is bonded to (X^1) and the other end of which is bonded to (X^2); and

wherein (X^3); (X^4); each substituent on the substituted cyclopentadienyl, the substituted indenyl, and the substituted fluorenyl; and each substituent on the substituted bridging group are independently selected from a hydrocarbyl group, an aliphatic group, an aromatic group, a cyclic group, a combination of aliphatic and cyclic groups, an oxygen group, a sulfur group, a nitrogen group, a phosphorus group, an arsenic group, a carbon group, a silicon group, a germanium group, a tin group, a lead group, a boron group, an aluminum group, $-SO_2X$, $-OAlX_2$, $-OSiX_3$, $-OPX_2$, $-SX$, $-OSO_2X$, $-AsX_2$, $-As(O)X_2$, or $-PX_2$, wherein X is selected independently from halide, H, NH_2, OR, or SR, wherein R is a hydrocarbyl, or a substituted derivative thereof, any one of which having from 1 to about 30 carbon atoms; a halide; or hydrogen.

11. (Currently amended) The method of Claim 1, wherein the at least one tightly-bridged metallocene compound is selected from a compound having the following formula:

$$(X^1)(X^2)(X^3)(X^4)M^1;$$

wherein M^1 is ~~selected from~~ Zr or Hf;

wherein (X^1) and (X^2) are independently selected from a cyclopentadienyl, an indenyl, or a fluorenyl, any one of which can be substituted or unsubstituted;

wherein (X^1) and (X^2) are connected by a bridging group selected from $>CR^1_2$, $>SiR^1_2$, or $-CR^1_2CR^1_2-$, wherein R^1 in each instance is independently selected from a linear, branched, substituted, or unsubstituted hydrocarbyl group, any one of which having from 1 to about 30 carbon atoms; or hydrogen; and

wherein any substituent on (X^1), (X^2), or R^1 is independently selected from a hydrocarbyl group, an oxygen group, a sulfur group, a nitrogen group, a phosphorus group, $-SO_2X$, $-OAlX_2$, $-OSiX_3$, $-OPX_2$, $-SX$, $-OSO_2X$, $-AsX_2$, $-As(O)X_2$, or $-PX_2$, wherein X is selected independently from halide, H, NH_2, OR, or SR, wherein R is a hydrocarbyl, having from 1 to about 30 carbon atoms; a halide; or hydrogen; and

wherein (X^3); (X^4) are independently selected from alkoxide or aryloxide having from 1 to about 30 carbon atoms, halide, or hydride.

12. (Currently amended) The method of Claim 1, wherein the at least one tightly-bridged metallocene compound is ~~selected from~~:

rac-1,2-ethanediylbis(η^5-1-indenyl)dichlorozirconium;

1,2-ethanediylbis(η^5-1-indenyl)di-n-butoxyhafnium;

1,2-ethanediylbis(η^5-1-indenyl)dimethylzirconium;

3,3-pentanediylbis(η^5-4,5,6,7-tetrahydro-l-indenyl)hafnium dichloride;

methylphenylsilylbis(η^5-4,5,6,7-tetrahydro-l-indenyl)zirconium dichloride;

rac-dimethylsilylbis(1-indenyl)zirconium dichloride;

octylphenylsilylbis(1-indenyl)hafnium dichloride; [[or]]

dimethylsilylbis(η^5-4,5,6,7-tetrahydro-l-indenyl)zirconium dichloride[[.]];

rac-dimethylsilylbis(2-methyl-l-indenyl)zirconium dichloride;
1,2-ethanediylbis(9-fluorenyl)zirconium dichloride;
methyloctylsilylbis(9-fluorenyl)zirconium dichloride;
diphenylmethylidene(cyclopentadienyl)(9-fluorenyl)zirconium dichloride;
diphenylmethylidene(cyclopentadienyl)(indenyl)zirconium dichloride;
iso-propylidenebis(cyclopentadienyl)zirconium dichloride;
iso-propylidene(cyclopentadienyl)(9-fluorenyl) zirconium dichloride;
iso-propylidene(3-methylcyclopentadienyl)(9-fluorenyl)zirconium dichloride;
meso-ethylenebis(1-indenyl)zirconium dichloride;
rac-ethylenebis(2-methyl-1-indenyl)zirconium dichloride;
rac-ethylenebis(4,5,6,7-tetrahydro-1-indenyl)zirconium dichloride;
dimethylsilylbis(cyclopentadienyl)zirconium dichloride;
dimethylsilylbis(9-fluorenyl)zirconium dichloride;
meso-dimethylsilylbis(2-methylindenyl)zirconium dichloride;
rac-dimethylsilylbis(tetrahydroindenyl) zirconium dichloride;
dimethylsilylbis(tetramethylcyclopentadienyl) zirconium dichloride;
diphenylsilyl(cyclopentadienyl)(9-fluorenyl) zirconium dichloride;
diphenylsilylbis(indenyl)hafnium dichloride; or
any combination thereof.

13. (Currently amended) The method of Claim 1, wherein the <u>at least one</u> tightly-bridged metallocene compound is ~~selected from~~ *rac*-1,2-ethanediylbis(η^5-1-indenyl)dichlorozirconium, dimethylsilyl*bis*(indenyl)zirconium dichloride, or a combination thereof.

14. (Currently amended) The method of Claim 1, wherein the at least one organoaluminum compound comprises a compound with the formula:

$$Al(X^5)_n(X^6)_{3-n}$$

wherein (X^5) is a hydrocarbyl having from 1 to about 20 carbon atoms; (X^6) is selected from alkoxide or aryloxide having from 1 to about 20 carbon atoms, halide, or hydride; and n is a number from 1 to 3, inclusive.

15. (Currently amended) The method of Claim 1, wherein[[,]] the at least one organoaluminum compound ~~comprises~~ is trimethylaluminum (TMA), triethylaluminum (TEA), tripropylaluminum, diethylaluminum ethoxide, tributylaluminum, diisobutylaluminum hydride, triisobutylaluminum, diethylaluminum chloride, or any combination thereof.

16-17. (Canceled)

18. (Original) The method of Claim 1, wherein the contacting is conducted in the presence of a diluent comprising isobutane.

19. (Previously presented) The method of Claim 1, wherein the catalyst composition further comprises the contact product of a cocatalyst selected from at least one aluminoxane, at least one organozinc compound, at least one organoboron compound, at least one ionizing ionic compound, or any combination thereof.

20. (Currently Amended) A method of polymerizing olefins, comprising:

contacting ethylene and at least one olefin comonomer with a catalyst composition under polymerization conditions to form a copolymer;

wherein the catalyst composition comprises the contact product of at least one tightly-bridged metallocene compound, at least one organoaluminum compound, and at least one chemically-treated solid oxide;

wherein the at least one chemically-treated solid oxide ~~comprises a material selected from fluorided silica-alumina,~~ is fluorided alumina, fluorided silica-titania, fluorided silica-zirconia, chlorided alumina, chlorided silica-alumina, chlorided silica-zirconia, chlorided zinc-aluminum oxide, sulfated alumina, sulfated silica-alumina, sulfated silica-zirconia, bromided alumina, bromided silica-alumina, bromided silica-zirconia, or any combination thereof;

wherein the at least one chemically-treated solid oxide is substantially free of titanium;

wherein the copolymer has a film haze of a 1 mil film at least about 60%; and

wherein the copolymer has a high load melt index (HLMI) from about 8 to about 180 dg/min.

21. (Original) The method of Claim 20, wherein the film haze of a 1 mil film is at least about 70%, and high load melt index is from about 10 to about 150 dg/min.

22. (Original) The method of Claim 20, wherein the film haze of a 1 mil film is at least about 70%, and the high load melt index is from about 11 to about 100 dg/min.

23. (Original) The method of Claim 20, wherein the copolymer is further characterized by a polydispersity index (Mw/Mn) less than or equal to about 20.

24. (Original) The method of Claim 20, wherein the copolymer is further characterized by a density less than about 0.935 g/cm^3.

25. (Original) The method of Claim 20, wherein the copolymer is further characterized by a melt index (MI) from about 0.01 to about 10 dg/min.

26. (Original) The method of Claim 20, wherein the copolymer is further characterized by a melt strength of a 1 mil film greater than or equal to about 5.0 in.

27. (Original) The method of Claim 20, wherein the copolymer is further characterized by a 1% MD Secant modulus of less than about 50,000 psi.

28. (Currently amended) The method of Claim 20, wherein the at least one tightly-bridged metallocene compound is selected from a compound having the following formula:

$$(X^1)(X^2)(X^3)(X^4)M^1$$

wherein M^1 is ~~selected from~~ titanium, zirconium, or hafnium;

wherein (X^1) and (X^2) are independently selected from a cyclopentadienyl, an indenyl, or a fluorenyl, any one of which can be substituted or unsubstituted;

wherein (X^1) and (X^2) are connected by a substituted or unsubstituted bridging group comprising:

a) one atom selected from carbon, silicon, germanium, or tin, bonded to both (X^1) and (X^2); or

b) two contiguous carbon atoms in a chain, one end of which is bonded to (X^1) and the other end of which is bonded to (X^2); and

wherein (X^3); (X^4); each substituent on the substituted cyclopentadienyl, the substituted indenyl, and the substituted fluorenyl; and each substituent on the substituted bridging group are independently selected from a hydrocarbyl group, an aliphatic group, an aromatic group, a cyclic group, a combination of aliphatic and cyclic groups, an oxygen

group, a sulfur group, a nitrogen group, a phosphorus group, an arsenic group, a carbon group, a silicon group, a germanium group, a tin group, a lead group, a boron group, an aluminum group, $-SO_2X$, $-OAlX_2$, $-OSiX_3$, $-OPX_2$, -SX, $-OSO_2X$, $-AsX_2$, $-As(O)X_2$, or $-PX_2$, wherein X is selected independently from halide, H, NH_2, OR, or SR, wherein R is a hydrocarbyl, or a substituted derivative thereof, having from 1 to about 30 carbon atoms; a halide; or hydrogen.

29. (Currently amended) The method of Claim 20, wherein the at least one tightly-bridged metallocene compound is selected from a compound having the following formula:

$$(X^1)(X^2)(X^3)(X^4)M^1;$$

wherein M^1 is selected from Zr or Hf;

wherein (X^1) and (X^2) are independently selected from a cyclopentadienyl, an indenyl, or a fluorenyl, any one of which can be substituted or unsubstituted;

wherein (X^1) and (X^2) are connected by a bridging group selected from $>CR^1_2$, $>SiR^1_2$, or $-CR^1_2CR^1_2-$, wherein R^1 in each instance is independently selected from a linear, branched, substituted, or unsubstituted hydrocarbyl group, any one of which having from 1 to about 30 carbon atoms; or hydrogen; and

wherein any substituent on (X^1), (X^2), or R^1 is independently selected from a hydrocarbyl group, an oxygen group, a sulfur group, a nitrogen group, a phosphorus group, $-SO_2X$, $-OAlX_2$, $-OSiX_3$, $-OPX_2$, -SX, $-OSO_2X$, $-AsX_2$, $-As(O)X_2$, or $-PX_2$, wherein X is selected independently from halide, H, NH_2, OR, or SR, wherein R is a hydrocarbyl, having from 1 to about 30 carbon atoms; a halide; or hydrogen; and

wherein (X^3); (X^4) are independently selected from alkoxide or aryloxide having from 1 to about 30 carbon atoms, halide, or hydride.

30. (Currently amended) The method of Claim 20, wherein the at least one tightly-bridged metallocene compound is ~~selected from~~:

rac-1,2-ethanediylbis(η^5-1-indenyl)dichlorozirconium;

1,2-ethanediylbis(η^5-1-indenyl)di-n-butoxyhafnium;

1,2-ethanediylbis(η^5-1-indenyl)dimethylzirconium;

3,3-pentanediylbis(η^5-4,5,6,7-tetrahydro-l-indenyl)hafnium dichloride;

methylphenylsilylbis(η^5-4,5,6,7-tetrahydro-l-indenyl)zirconium dichloride;

rac-dimethylsilylbis(1-indenyl)zirconium dichloride;

octylphenylsilylbis(1-indenyl)hafnium dichloride; [[or]]

dimethylsilylbis(η^5-4,5,6,7-tetrahydro-l-indenyl)zirconium dichloride[[.]];

rac-dimethylsilylbis(2-methyl-l-indenyl)zirconium dichloride;

1,2-ethanediylbis(9-fluorenyl)zirconium dichloride;

methyloctylsilylbis(9-fluorenyl)zirconium dichloride;

diphenylmethylidene(cyclopentadienyl)(9-fluorenyl)zirconium dichloride;

diphenylmethylidene(cyclopentadienyl)(indenyl)zirconium dichloride;

iso-propylidenebis(cyclopentadienyl)zirconium dichloride;

iso-propylidene(cyclopentadienyl)(9-fluorenyl) zirconium dichloride;

iso-propylidene(3-methylcyclopentadienyl)(9-fluorenyl)zirconium dichloride;

meso-ethylenebis(1-indenyl)zirconium dichloride;

rac-ethylenebis(2-methyl-1-indenyl)zirconium dichloride;

rac-ethylenebis(4,5,6,7-tetrahydro-1-indenyl)zirconium dichloride;

dimethylsilylbis(cyclopentadienyl)zirconium dichloride;

dimethylsilylbis(9-fluorenyl)zirconium dichloride;

meso-dimethylsilylbis(2-methylindenyl)zirconium dichloride;

rac-dimethylsilylbis(tetrahydroindenyl) zirconium dichloride;

dimethylsilylbis(tetramethylcyclopentadienyl) zirconium dichloride;

diphenylsilyl(cyclopentadienyl)(9-fluorenyl) zirconium dichloride;

diphenylsilylbis(indenyl)hafnium dichloride; or

any combination thereof.

31. (Currently amended) The method of Claim 20, wherein the at least one tightly-bridged metallocene compound is ~~selected from~~ *rac*-1,2-ethanediylbis(η^5-1-indenyl)dichlorozirconium, dimethylsilyl*bis*(indenyl)zirconium dichloride, or a combination thereof.

32. (Currently amended) The method of Claim 20, wherein the at least one organoaluminum compound comprises a compound with the formula:

$$Al(X^5)_n(X^6)_{3-n}$$

wherein (X^5) is a hydrocarbyl having from 1 to about 20 carbon atoms; (X^6) is selected from alkoxide or aryloxide having from 1 to about 20 carbon atoms, halide, or hydride; and n is a number from 1 to 3, inclusive.

33. (Currently amended) The method of Claim 20, wherein[[,]] the at least one organoaluminum compound ~~comprises~~ is trimethylaluminum (TMA), triethylaluminum (TEA), tripropylaluminum, diethylaluminum ethoxide, tributylaluminum, diisobutylaluminum hydride, triisobutylaluminum, diethylaluminum chloride, or any combination thereof.

34-35. (Canceled)

36. (Original) The method of Claim 20, wherein the contacting is conducted in the presence of a diluent comprising isobutane.

37. (Previously presented) The method of Claim 20, wherein the catalyst composition further comprises the contact product of a cocatalyst selected from at least one aluminoxane, at least one organozinc compound, at least one organoboron compound, at least one ionizing ionic compound, or any combination thereof.

38. (Currently amended) A composition comprising the contact product of at least one tightly-bridged metallocene compound, at least one organoaluminum compound, and at least one chemically-treated solid oxide, wherein the at least one tightly-bridged metallocene compound is selected from a compound having the following formula:

$$(X^1)(X^2)(X^3)(X^4)M^1;$$

wherein M^1 is ~~selected from~~ titanium, zirconium, or hafnium;

wherein (X^1) and (X^2) are independently selected from a cyclopentadienyl, an indenyl, or a fluorenyl, any one of which can be substituted or unsubstituted;

wherein (X^1) and (X^2) are connected by a substituted or unsubstituted bridging group comprising:

a) one atom selected from carbon, silicon, germanium, or tin, bonded to both (X^1) and (X^2); or

b) two contiguous carbon atoms in a chain, one end of which is bonded to (X^1) and the other end of which is bonded to (X^2); and

wherein (X^3); (X^4); each substituent on the substituted cyclopentadienyl, the substituted indenyl, and the substituted fluorenyl; and each substituent on the substituted bridging group are independently selected from a hydrocarbyl group, an aliphatic group, an aromatic group, a cyclic group, a combination of aliphatic and cyclic groups, an oxygen group, a sulfur group, a nitrogen group, a phosphorus group, an arsenic group, a carbon group, a silicon group, a germanium group, a tin group, a lead group, a boron group, an aluminum group, $-SO_2X$, $-OAlX_2$, $-OSiX_3$, $-OPX_2$, $-SX$, $-OSO_2X$, $-AsX_2$, $-As(O)X_2$, or $-PX_2$, wherein X is selected independently from halide, H, NH_2, OR, or SR, wherein R is a

hydrocarbyl, or a substituted derivative thereof, having from 1 to about 30 carbon atoms; a halide; or hydrogen; and

wherein the at least one chemically-treated solid oxide ~~comprises a material selected from fluorided silica-alumina,~~ is fluorided alumina, fluorided silica-titania, fluorided silica-zirconia, chlorided alumina, chlorided silica-alumina, chlorided silica-zirconia, chlorided zinc-aluminum oxide, sulfated alumina, sulfated silica-alumina, sulfated silica-zirconia, bromided alumina, bromided silica-alumina, bromided silica-zirconia, or any combination thereof; and

wherein the at least one chemically-treated solid oxide is substantially free of titanium.

39. (Currently amended) The composition of Claim 38, wherein the at least one tightly-bridged metallocene compound is selected from a compound having the following formula:

$$(X^1)(X^2)(X^3)(X^4)M^1;$$

wherein M^1 is ~~selected from~~ Zr or Hf;

wherein (X^1) and (X^2) are independently selected from a cyclopentadienyl, an indenyl, or a fluorenyl, any one of which can be substituted or unsubstituted;

wherein (X^1) and (X^2) are connected by a bridging group selected from $>CR^1_2$, $>SiR^1_2$, or $-CR^1_2CR^1_2-$, wherein R^1 in each instance is independently selected from a linear, branched, substituted, or unsubstituted hydrocarbyl group, any one of which having from 1 to about 30 carbon atoms; or hydrogen; and

wherein any substituent on (X^1), (X^2), or R^1 is independently selected from a hydrocarbyl group, an oxygen group, a sulfur group, a nitrogen group, a phosphorus group, $-SO_2X$, $-OAlX_2$, $-OSiX_3$, $-OPX_2$, $-SX$, $-OSO_2X$, $-AsX_2$, $-As(O)X_2$, or $-PX_2$, wherein X is selected independently from halide, H, NH_2, OR, or SR, wherein R is a hydrocarbyl, having from 1 to about 30 carbon atoms; a halide; or hydrogen; and

wherein (X^3); (X^4) are independently selected from alkoxide or aryloxide having from 1 to about 30 carbon atoms, halide, or hydride.

40. (Currently amended) The composition of Claim 38, wherein the at least one tightly-bridged metallocene compound is ~~selected from~~:

rac-1,2-ethanediylbis(η^5-1-indenyl)dichlorozirconium;

1,2-ethanediylbis(η^5-1-indenyl)di-n-butoxyhafnium;

1,2-ethanediylbis(η^5-1-indenyl)dimethylzirconium;

3,3-pentanediylbis(η^5-4,5,6,7-tetrahydro-l-indenyl)hafnium dichloride;

methylphenylsilylbis(η^5-4,5,6,7-tetrahydro-l-indenyl)zirconium dichloride;

rac-dimethylsilylbis(1-indenyl)zirconium dichloride;

octylphenylsilylbis(1-indenyl)hafnium dichloride; [[or]]

dimethylsilylbis(η^5-4,5,6,7-tetrahydro-l-indenyl)zirconium dichloride[[.]];

rac-dimethylsilylbis(2-methyl-l-indenyl)zirconium dichloride;

1,2-ethanediylbis(9-fluorenyl)zirconium dichloride;

methyloctylsilylbis(9-fluorenyl)zirconium dichloride;

diphenylmethylidene(cyclopentadienyl)(9-fluorenyl)zirconium dichloride;

diphenylmethylidene(cyclopentadienyl)(indenyl)zirconium dichloride;

iso-propylidenebis(cyclopentadienyl)zirconium dichloride;

iso-propylidene(cyclopentadienyl)(9-fluorenyl) zirconium dichloride;

iso-propylidene(3-methylcyclopentadienyl)(9-fluorenyl)zirconium dichloride;

meso-ethylenebis(1-indenyl)zirconium dichloride;

rac-ethylenebis(2-methyl-1-indenyl)zirconium dichloride;

rac-ethylenebis(4,5,6,7-tetrahydro-1-indenyl)zirconium dichloride;

dimethylsilylbis(cyclopentadienyl)zirconium dichloride;

dimethylsilylbis(9-fluorenyl)zirconium dichloride;

meso-dimethylsilylbis(2-methylindenyl)zirconium dichloride;

rac-dimethylsilylbis(tetrahydroindenyl) zirconium dichloride;

dimethylsilylbis(tetramethylcyclopentadienyl) zirconium dichloride;

diphenylsilyl(cyclopentadienyl)(9-fluorenyl) zirconium dichloride;

diphenylsilylbis(indenyl)hafnium dichloride; or

any combination thereof.

41. (Currently amended) The composition of Claim 38, wherein the at least one tightly-bridged metallocene compound is ~~selected from~~ *rac*-1,2-ethanediylbis(η^5-1-indenyl)dichlorozirconium, dimethylsilyl*bis*(indenyl)zirconium dichloride, or a combination thereof.

42. (Currently amended) The composition of Claim 38, wherein the at least one organoaluminum compound comprises a compound with the formula:

$$Al(X^5)_n(X^6)_{3-n}$$

wherein (X^5) is a hydrocarbyl having from 1 to about 20 carbon atoms; (X^6) is selected from alkoxide or aryloxide having from 1 to about 20 carbon atoms, halide, or hydride; and n is a number from 1 to 3, inclusive.

43. (Currently amended) The composition of Claim 38, wherein[[,]] the at least one organoaluminum compound ~~comprises~~ is trimethylaluminum (TMA), triethylaluminum (TEA), tripropylaluminum, diethylaluminum ethoxide, tributylaluminum, diisobutylaluminum hydride, triisobutylaluminum, diethylaluminum chloride, or any combination thereof.

44-45. (Canceled)

46. (New) A method of polymerizing olefins, comprising:

contacting ethylene and at least one olefin comonomer with a catalyst composition under polymerization conditions to form a copolymer;

wherein the catalyst composition comprises the contact product of at least one tightly-bridged metallocene compound, at least one organoaluminum compound, and at least one chemically-treated solid oxide;

wherein the at least one chemically-treated solid oxide is fluorided silica-alumina, fluorided alumina, fluorided silica-titania, fluorided silica-zirconia, chlorided zinc-aluminum oxide, sulfated alumina, or any combination thereof;

wherein the at least one chemically-treated solid oxide is substantially free of titanium;

wherein the copolymer has a polydispersity index (Mw/Mn) less than or equal to about 20; and

wherein the copolymer has a film clarity of a 1 mil film less than or equal to about 30%;

with the proviso that the at least one tightly-bridged metallocene compound is not:

1,2-ethanediylbis(η^5-1-indenyl)di-n-butoxyhafnium;

1,2-ethanediylbis(η^5-1-indenyl)dimethylzirconium;

3,3-pentanediylbis(η^5-4,5,6,7-tetrahydro-l-indenyl)hafnium dichloride;

methylphenylsilylbis(η^5-4,5,6,7-tetrahydro-l-indenyl)zirconium dichloride;

rac-dimethylsilylbis(1-indenyl)zirconium dichloride;

nonylphenylsilylbis(1-indenyl)hafnium dichloride;

dimethylsilylbis(η^5-4,5,6,7-tetrahydro-l-indenyl)zirconium dichloride;

rac-dimethylsilylbis(2-methyl-l-indenyl)zirconium dichloride;

1,2-ethanediylbis(9-fluorenyl)zirconium dichloride; or

methyloctylsilylbis(9-fluorenyl)zirconium dichloride.

47. (New) A method of polymerizing olefins, comprising:

contacting ethylene and at least one olefin comonomer with a catalyst composition under polymerization conditions to form a copolymer;

wherein the catalyst composition comprises the contact product of at least one tightly-bridged metallocene compound, at least one organoaluminum compound, and at least one chemically-treated solid oxide;

wherein the at least one chemically-treated solid oxide is fluorided silica-alumina, fluorided alumina, fluorided silica-titania, fluorided silica-zirconia, chlorided zinc-aluminum oxide, sulfated alumina, or any combination thereof;

wherein the at least one chemically-treated solid oxide is substantially free of titanium;

wherein the copolymer has a film haze of a 1 mil film at least about 60%; and

wherein the copolymer has a high load melt index (HLMI) from about 8 to about 180 dg/min;

with the proviso that the at least one tightly-bridged metallocene compound is not:

1,2-ethanediylbis(η^5-1-indenyl)di-n-butoxyhafnium;

1,2-ethanediylbis(η^5-1-indenyl)dimethylzirconium;

3,3-pentanediylbis(η^5-4,5,6,7-tetrahydro-l-indenyl)hafnium dichloride;

methylphenylsilylbis(η^5-4,5,6,7-tetrahydro-l-indenyl)zirconium dichloride;

rac-dimethylsilylbis(1-indenyl)zirconium dichloride;

nonylphenylsilylbis(1-indenyl)hafnium dichloride;

dimethylsilylbis(η^5-4,5,6,7-tetrahydro-l-indenyl)zirconium dichloride;

rac-dimethylsilylbis(2-methyl-l-indenyl)zirconium dichloride;

1,2-ethanediylbis(9-fluorenyl)zirconium dichloride; or

methyloctylsilylbis(9-fluorenyl)zirconium dichloride.

48. (New) A composition comprising the contact product of at least one tightly-bridged metallocene compound, at least one organoaluminum compound, and at least one chemically-treated solid oxide, wherein the at least one tightly-bridged metallocene compound is selected from a compound having the following formula:

$$(X^1)(X^2)(X^3)(X^4)M^1;$$

wherein M^1 is titanium, zirconium, or hafnium;

wherein (X^1) and (X^2) are independently selected from a cyclopentadienyl, an indenyl, or a fluorenyl, any one of which can be substituted or unsubstituted;

wherein (X^1) and (X^2) are connected by a substituted or unsubstituted bridging group comprising:

a) one atom selected from carbon, silicon, germanium, or tin, bonded to both (X^1) and (X^2); or

b) two contiguous carbon atoms in a chain, one end of which is bonded to (X^1) and the other end of which is bonded to (X^2); and

wherein (X^3); (X^4); each substituent on the substituted cyclopentadienyl, the substituted indenyl, and the substituted fluorenyl; and each substituent on the substituted bridging group are independently selected from a hydrocarbyl group, an aliphatic group, an aromatic group, a cyclic group, a combination of aliphatic and cyclic groups, an oxygen group, a sulfur group, a nitrogen group, a phosphorus group, an arsenic group, a carbon group, a silicon group, a germanium group, a tin group, a lead group, a boron group, an aluminum group, $-SO_2X$, $-OAlX_2$, $-OSiX_3$, $-OPX_2$, $-SX$, $-OSO_2X$, $-AsX_2$, $-As(O)X_2$, or $-PX_2$, wherein X is selected independently from halide, H, NH_2, OR, or SR, wherein R is a hydrocarbyl, or a substituted derivative thereof, having from 1 to about 30 carbon atoms; a halide; or hydrogen; and

wherein the at least one chemically-treated solid oxide is fluorided silica-alumina, fluorided alumina, fluorided silica-titania, fluorided silica-zirconia, chlorided zinc-aluminum oxide, sulfated alumina, or any combination thereof; and

wherein the at least one chemically-treated solid oxide is substantially free of titanium;

with the proviso that the at least one tightly-bridged metallocene compound is not:

1,2-ethanediylbis(η^5-1-indenyl)di-n-butoxyhafnium;

1,2-ethanediylbis(η^5-1-indenyl)dimethylzirconium;

3,3-pentanediylbis(η^5-4,5,6,7-tetrahydro-l-indenyl)hafnium dichloride;

methylphenylsilylbis(η^5-4,5,6,7-tetrahydro-l-indenyl)zirconium dichloride;

rac-dimethylsilylbis(1-indenyl)zirconium dichloride;

nonylphenylsilylbis(1-indenyl)hafnium dichloride;

dimethylsilylbis(η^5-4,5,6,7-tetrahydro-l-indenyl)zirconium dichloride;

rac-dimethylsilylbis(2-methyl-l-indenyl)zirconium dichloride;

1,2-ethanediylbis(9-fluorenyl)zirconium dichloride; or

methyloctylsilylbis(9-fluorenyl)zirconium dichloride.